

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A solid polymer cell assembly comprising a cell assembly formed by juxtaposing a plurality of unit cells such that electrode surfaces of said unit cells are aligned in parallel with each other, said unit cell each having an assembly including an anode, a cathode, and a solid polymer electrolyte membrane interposed between said anode and said cathode,

wherein said unit cells includes an upstream unit cell provided on an upstream side in a flow direction of a reactant gas including at least one of an oxygen-containing gas and a fuel gas, and a downstream unit cell provided on a downstream side in the flow direction, and wherein said unit cells include an upstream unit cell provided on the upstream side in a flow direction of the oxygen-containing gas, and a downstream unit cell provided on the downstream side in the flow direction of the oxygen-containing gas;

wherein a coolant flow passage is provided such that a coolant flows serially from said upstream unit cell provided on the upstream side in the flow direction of the oxygen-containing gas to said downstream unit cell provided on the downstream side in the flow direction of the oxygen-containing gas so that temperature of said downstream unit cell provided on the downstream side in the flow direction of the oxygen-containing gas is kept higher than temperature of said upstream unit cell provided on the upstream side in the flow direction of the oxygen-containing gas; and

at least part of a reactant gas flow passage for said reactant gas extends serially from a passage formed on an upper side of the assembly of said upstream unit cell to a passage formed on a lower side of the assembly of said downstream unit cell, wherein said reactant gas flow passage includes a fuel gas flow passage and an oxygen-containing gas flow passage, and the oxygen-containing gas and the fuel gas flows in a counterflow manner in the oxygen-containing gas flow passage and the fuel gas flow passage along both surfaces of the assemblies of said unit cells.

2. (Canceled)

3. (Canceled)

4. (Currently Amended) A cell assembly according to claim ~~3~~ 1, wherein structure of said upstream unit cell is different from structure of said downstream unit cell.

5. (Previously Presented) A cell assembly according to claim 4, the assembly of said upstream unit cell and the assembly of said downstream unit cell have the same power generation performance when the assembly of said upstream unit cell is operated at a low temperature in comparison with the assembly of said downstream unit cell.

6. (Previously Presented) A cell assembly according to claim 4, wherein said cathode of the assembly of said upstream unit cell has a hydrophobic diffusion layer having low porosity, and said anode of the assembly of said upstream unit cell has a hydrophilic diffusion layer having high porosity; and

said hydrophobic diffusion layer having low porosity is provided on the upper side, and said hydrophilic diffusion layer having high porosity is provided on the lower side.

7. (Previously Presented) A cell assembly according to claim 4, wherein said anode of the assembly of said downstream unit cell has a hydrophobic diffusion layer having low porosity, and said cathode of the assembly of said downstream unit cell has a hydrophilic diffusion layer having high porosity; and

said hydrophobic diffusion layer having low porosity is provided on the upper side, and said hydrophilic diffusion layer having high porosity is provided on the lower side.

8. (Currently Amended) ~~A cell assembly according to claim 1,~~ A solid polymer cell assembly comprising a cell assembly formed by juxtaposing a plurality of unit cells such that

electrode surfaces of said unit cells are aligned in parallel with each other, said unit cells each having an assembly including an anode, a cathode, and a solid polymer electrolyte membrane interposed between said anode and said cathode,

wherein said unit cells includes an upstream unit cell provided on an upstream side in a flow direction of a reactant gas including at least one of an oxygen-containing gas and a fuel gas, and a downstream unit cell provided on a downstream side in the flow direction;

wherein at least part of a reactant gas flow passage for said reactant gas extends serially from a passage formed on an upper side of the assembly of said upstream unit cell to a passage formed on a lower side of the assembly of said downstream unit cell;

wherein a connection passage member is provided between said juxtaposed unit cells;
and

a reactant gas connection passage and a coolant connection passage are formed in said connection passage member for serially supplying the reactant gas and the coolant.